AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (canceled)

2. (currently amended) A method for operating a wireless communications system for assigning system resources to users, comprising:

within a coverage area of a base station (BS) having a multi-element antenna array, estimating a spatial signature vector (SSV) for individual ones of a plurality of active subscriber stations (SSs); and

assigning a system resource to a subscriber station (SS) that minimizes the similarity of the determined SSVs of the SSs sharing the system resource, ~~A method as in claim 1,~~ wherein a metric used to measure the similarity of the spatial signature vectors of the SSs comprises the squared sum of the inner products of the SSs' SSV, that share the resource, with the current SS's SSV.

3. (currently amended) A method for operating a wireless communications system for assigning system resources to users, comprising:

within a coverage area of a base station (BS) having a multi-element antenna array, estimating a spatial signature vector (SSV) for individual ones of a plurality of active subscriber stations (SSs); and

assigning a system resource to a subscriber station (SS) that minimizes the similarity of the determined SSVs of the SSs sharing the system resource, ~~A method as in claim 1,~~ wherein the step of assigning includes calculating the magnitude of the squared inner product of the SSVs of all pairs of active SSs; using the calculated values for determining $\xi_n(c)$ for the resource; and assigning to

a SS the system resource having a minimum $\xi_n(c)$.

4. (currently amended) A method as in claim ~~1~~2, and further comprising beamforming using the multi-element antenna array so as to maximize the signal to interference plus noise ratio (SINR) for a signal transmitted from a first SS by steering a null towards a second potentially interfering SS to minimize interference from the second SS.

5. (original) A method as in claim 4, wherein the step of beamforming comprises a step of receiving the signal received from the desired SS, followed by a step of spatial filtering.

6. (original) A method as in claim 4, wherein the step of beamforming comprises steps of operating the SSs to obtain channel estimates comprised of the path amplitude and phase from each of *m* antenna elements and to use the *m* channel estimates as a spatial signature vector, and from the spatial signature vectors received from a plurality of same-code subscriber stations, computing antenna element weight vectors.

7. (canceled)

8. (currently amended) A synchronous space division multiple access, code division multiple access communications system, comprising a data processor for estimating, within a coverage area of a radio base unit (RBU) having a multi-element antenna array, a spatial signature vector (SSV) for individual ones of a plurality of active subscriber stations (SSs) and for assigning a spreading code to a subscriber station (SS) that minimizes the similarity of the determined SSVs of the SSs in a code set,
~~A system as in claim 7,~~ wherein a metric used by said data processor to measure the similarity of the spatial signature vectors of the SSs comprises the squared sum of the inner products of same code SSs' SSV with a current SS's SSV.

9. (currently amended) A synchronous space division multiple access, code division multiple access communications system, comprising a data processor for estimating, within a coverage area of a radio base unit (RBU) having a multi-element antenna array, a spatial signature vector (SSV) for individual ones of a plurality of active subscriber stations (SSs) and for assigning a spreading code to a subscriber station (SS) that minimizes the similarity of the determined SSVs of the SSs in a code set,
~~A system as in claim 7,~~ wherein said data processor operates to calculate the magnitude of the squared inner product of the SSVs of all pairs of active Sss, uses the calculated values for finding $\xi_n(c)$ for each spreading code that is not already used some specified maximum number of times, and assigns to a SS the spreading code with a minimum $\xi_n(c)$.

10. (currently amended) A system as in claim ~~7~~ 8, wherein said data processor further operates beamforming circuitry with said multi-element antenna array so as to maximize the signal to interference plus noise ratio (SINR) for a signal transmitted from a first SS by steering a null towards a second same-code SS to minimize interference from the second same-code SS.

11. (original) A system as in claim 10, wherein said beamforming circuitry comprises a despreader for despreading a signal received from SSs and a spatial filter having an input coupled to an output of said despreader.

12. (original) A system as in claim 11, wherein for a case of independent fading on each antenna element of said antenna array, said system achieves a diversity gain of *M*, where *M* is equal to the number of antenna elements of said antenna array.

13. (canceled)

14. (currently amended) A method for operating a synchronous space division multiple access, code division multiple access communications system for assigning spreading codes to users, comprising:

within a coverage area of a base station (BS) having a multi-element antenna array, estimating a spatial signature vector (SSV) for individual ones of a plurality of active subscriber stations (SSs); and

assigning a spreading code to a subscriber station (SS) that minimizes the similarity of the determined SSVs of the SSs in a code set
~~A method as in claim 13,~~ wherein a metric used to measure the similarity of the spatial signature vectors of the SSs comprises the squared sum of the inner products of the same code SSs' SSV with the current SS's SSV.

15 (currently amended) A method for operating a synchronous space division multiple access, code division multiple access communications system for assigning spreading codes to users, comprising:

within a coverage area of a base station (BS) having a multi-element antenna array, estimating a spatial signature vector (SSV) for individual ones of a plurality of active subscriber stations (SSs); and

assigning a spreading code to a subscriber station (SS) that minimizes the similarity of the determined SSVs of the SSs in a code set

~~A method as in claim 13,~~ wherein the step of assigning includes calculating the magnitude of the squared inner product of the SSVs of all pairs of active SSs; using the calculated values for determining $\xi_n(c)$ for each spreading code that is not already used some specified maximum number of times; and assigning to a SS the spreading code with a minimum $\xi_n(c)$.

16. (currently amended) A method as in claim ~~13~~ 14, and further comprising beamforming using the multi-element antenna array so as to maximize the signal to interference plus noise ratio (SINR) for a signal transmitted from a first SS by steering a null towards a second same-code SS to minimize interference from the second same-code SS.

17. (original) A method as in claim 16 wherein the step of beamforming comprises a step of despreading the signal received from the desired SS, followed by a step of spatial filtering.

18. (original) A method as in claim 16, wherein the step of beamforming comprises steps of operating the SSs to obtain channel estimates comprised of the path amplitude and phase from each of m antenna elements and to use the m channel estimates as a spatial signature vector, and from the spatial signature vectors received from a plurality of same-code subscriber stations, computing antenna element weight vectors.

19. (original) A method for operating a code division multiple access communications system, comprising:

estimating a spatial signature vector for individual ones of a plurality of active users located within a coverage area of a base station that operates with a multi-element antenna array;

calculating the magnitude of the squared inner product of the spatial signature vectors of pairs of active users;

using the calculated values of the magnitude of the squared inner product of the spatial signature vectors for determining a spatial signature vector similarity metric for spreading codes not already in use some maximum number of times; and

assigning a spreading code to a user that minimizes the spatial signature vector similarity metric.